

AD-A079 990

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19702A 9SR5, MISSILE NUMBER 310, ROUND NUMBER B-33, 27 AUGUST 1--ETC(U)
AUG 79

UNCLASSIFIED

ERADCOM/ASL-DR-1057

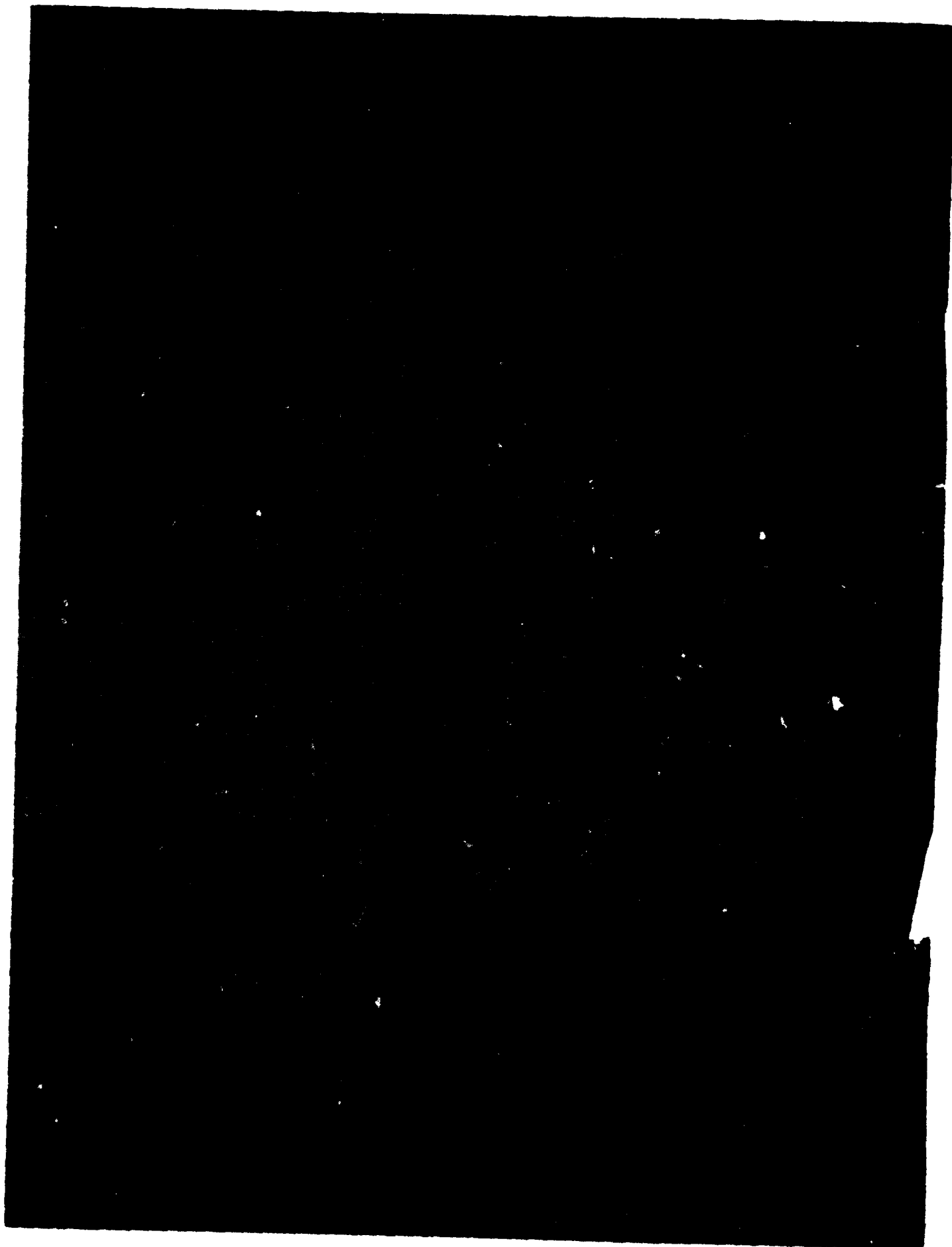
NL

(of)
20
ADP00000



END
DATE
FILMED
2-80
DDI

ADA 079990



DISCLAIMER NOTICE

**THIS DOCUMENT IS BEST QUALITY
PRACTICABLE. THE COPY FURNISHED
TO DDC CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.**

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR 1057	2. GOVT ACCESSION NO.	3. REPORTS CATALOG NUMBER
4. TITLE (and Subtitle) 19702 A GSPS, Missile Number 310, Round Number B-33, 27 AUGUST 1979.		5. PRICE OF REPORT (if applicable)
6. AUTHOR(s) White Sands Meteorological Data rept.		7. CONTRACT OR GRANT NUMBER DA Task 1P665702D12702
8. PERFORMING ORGANIZATION NAME AND ADDRESS		9. PERFORMING ORG REPORT NUMBER
10. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Comd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002		11. REPORT DATE August 1979
12. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research & Development Comd		13. NUMBER OF PAGES 21
14. DISTRIBUTION STATEMENT (of this report) Approved for public release; distribution unlimited. 14 EP102 11 SA-DR-1051		15. SECURITY CLASS. (of this report) UNCLASSIFIED 1021
16. DISTRIBUTION STATEMENT (of this report)		
17. DISTRIBUTION STATEMENT (of this report)		
18. DISTRIBUTION STATEMENT (of this report)		
19. DISTRIBUTION STATEMENT (of this report)		
20. DISTRIBUTION STATEMENT (of this report)		
21. DISTRIBUTION STATEMENT (of this report)		
22. DISTRIBUTION STATEMENT (of this report)		
23. DISTRIBUTION STATEMENT (of this report)		
24. DISTRIBUTION STATEMENT (of this report)		
25. DISTRIBUTION STATEMENT (of this report)		
26. DISTRIBUTION STATEMENT (of this report)		
27. DISTRIBUTION STATEMENT (of this report)		
28. DISTRIBUTION STATEMENT (of this report)		
29. DISTRIBUTION STATEMENT (of this report)		
30. DISTRIBUTION STATEMENT (of this report)		
31. DISTRIBUTION STATEMENT (of this report)		
32. DISTRIBUTION STATEMENT (of this report)		
33. DISTRIBUTION STATEMENT (of this report)		
34. DISTRIBUTION STATEMENT (of this report)		
35. DISTRIBUTION STATEMENT (of this report)		
36. DISTRIBUTION STATEMENT (of this report)		
37. DISTRIBUTION STATEMENT (of this report)		
38. DISTRIBUTION STATEMENT (of this report)		
39. DISTRIBUTION STATEMENT (of this report)		
40. DISTRIBUTION STATEMENT (of this report)		
41. DISTRIBUTION STATEMENT (of this report)		
42. DISTRIBUTION STATEMENT (of this report)		
43. DISTRIBUTION STATEMENT (of this report)		
44. DISTRIBUTION STATEMENT (of this report)		
45. DISTRIBUTION STATEMENT (of this report)		
46. DISTRIBUTION STATEMENT (of this report)		
47. DISTRIBUTION STATEMENT (of this report)		
48. DISTRIBUTION STATEMENT (of this report)		
49. DISTRIBUTION STATEMENT (of this report)		
50. DISTRIBUTION STATEMENT (of this report)		
51. DISTRIBUTION STATEMENT (of this report)		
52. DISTRIBUTION STATEMENT (of this report)		
53. DISTRIBUTION STATEMENT (of this report)		
54. DISTRIBUTION STATEMENT (of this report)		
55. DISTRIBUTION STATEMENT (of this report)		
56. DISTRIBUTION STATEMENT (of this report)		
57. DISTRIBUTION STATEMENT (of this report)		
58. DISTRIBUTION STATEMENT (of this report)		
59. DISTRIBUTION STATEMENT (of this report)		
60. DISTRIBUTION STATEMENT (of this report)		
61. DISTRIBUTION STATEMENT (of this report)		
62. DISTRIBUTION STATEMENT (of this report)		
63. DISTRIBUTION STATEMENT (of this report)		
64. DISTRIBUTION STATEMENT (of this report)		
65. DISTRIBUTION STATEMENT (of this report)		
66. DISTRIBUTION STATEMENT (of this report)		
67. DISTRIBUTION STATEMENT (of this report)		
68. DISTRIBUTION STATEMENT (of this report)		
69. DISTRIBUTION STATEMENT (of this report)		
70. DISTRIBUTION STATEMENT (of this report)		
71. DISTRIBUTION STATEMENT (of this report)		
72. DISTRIBUTION STATEMENT (of this report)		
73. DISTRIBUTION STATEMENT (of this report)		
74. DISTRIBUTION STATEMENT (of this report)		
75. DISTRIBUTION STATEMENT (of this report)		
76. DISTRIBUTION STATEMENT (of this report)		
77. DISTRIBUTION STATEMENT (of this report)		
78. DISTRIBUTION STATEMENT (of this report)		
79. DISTRIBUTION STATEMENT (of this report)		
80. DISTRIBUTION STATEMENT (of this report)		
81. DISTRIBUTION STATEMENT (of this report)		
82. DISTRIBUTION STATEMENT (of this report)		
83. DISTRIBUTION STATEMENT (of this report)		
84. DISTRIBUTION STATEMENT (of this report)		
85. DISTRIBUTION STATEMENT (of this report)		
86. DISTRIBUTION STATEMENT (of this report)		
87. DISTRIBUTION STATEMENT (of this report)		
88. DISTRIBUTION STATEMENT (of this report)		
89. DISTRIBUTION STATEMENT (of this report)		
90. DISTRIBUTION STATEMENT (of this report)		
91. DISTRIBUTION STATEMENT (of this report)		
92. DISTRIBUTION STATEMENT (of this report)		
93. DISTRIBUTION STATEMENT (of this report)		
94. DISTRIBUTION STATEMENT (of this report)		
95. DISTRIBUTION STATEMENT (of this report)		
96. DISTRIBUTION STATEMENT (of this report)		
97. DISTRIBUTION STATEMENT (of this report)		
98. DISTRIBUTION STATEMENT (of this report)		
99. DISTRIBUTION STATEMENT (of this report)		
100. DISTRIBUTION STATEMENT (of this report)		

CONTENTS	PAGE
INTRODUCTION-----	1
DISCUSSION-----	1
MAP-----	2
TABLES	
1. Surface Observation Taken at 0820 MDT at LC-33-----	3
2. Anemometer-Measured Wind Speed and Direction, LC-33 Fixed Pole, Taken at 0820 MDT-----	4
3. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 0820 MDT-----	5
4. LC-33 Pilot Balloon Measured Wind Data at 0812 MDT-----	6
5. LC-33 Pilot Balloon Measured Wind Data at 0820 MDT-----	7
6. Nick Site Pilot Balloon Measured Wind Data at 0810 MDT-----	8
7. Nick Site Pilot Balloon Measured Wind Data at 0820 MDT-----	9
8. SMR Significant Level Data at 0700 MST-----	10
9. SMR Upper Air Data at 0700 MST-----	12
10. SMR Mandatory Levels at 0700 MST-----	17

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DDC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or special
A	23

INTRODUCTION

19702A GSRS, Missile Number 310, Round Number B-33, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0820 MDT, 27 August 1979. The scheduled launch time was 0815 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPS T-9 pilot observation at:

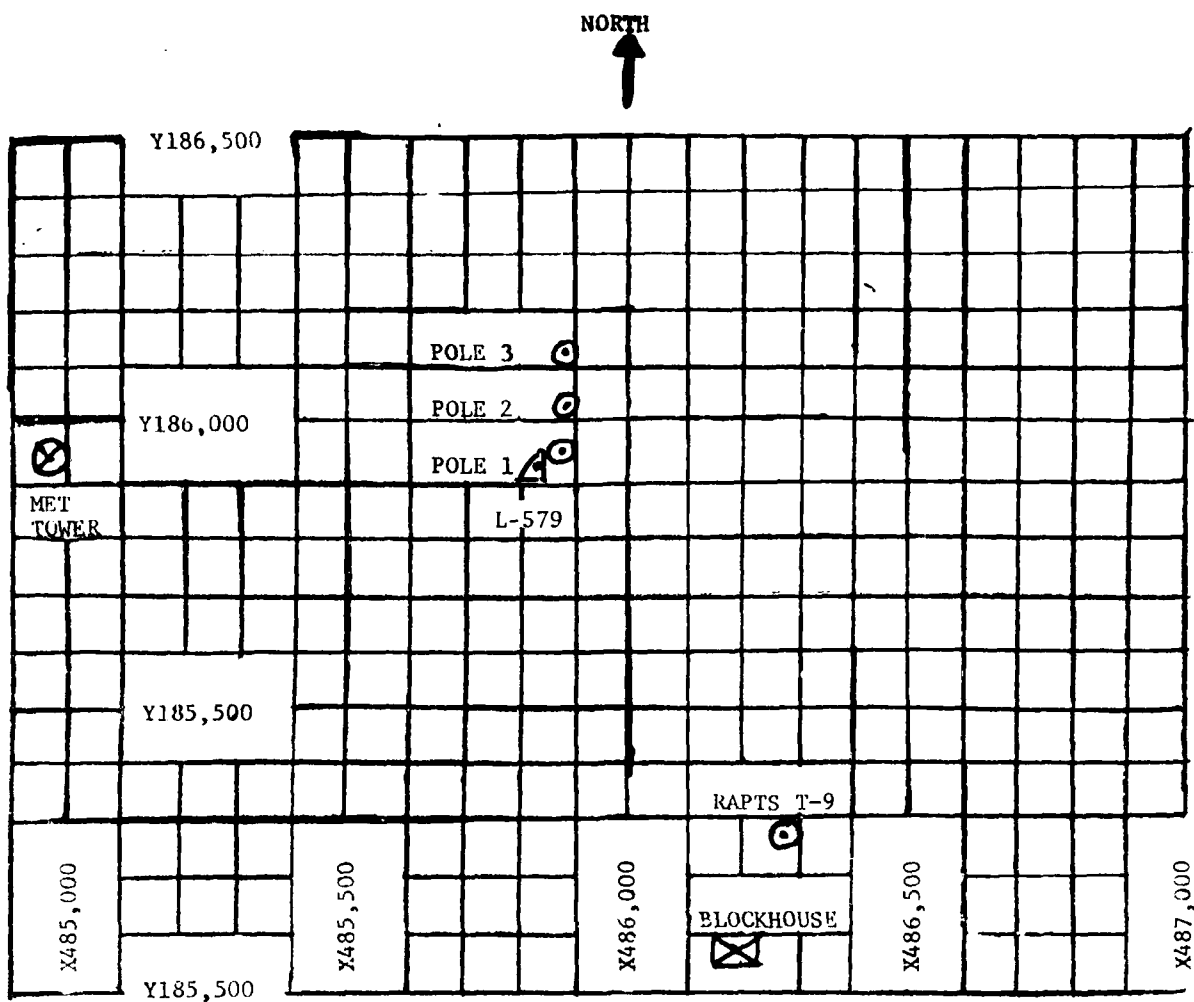
SITE AND ALTITUDE

LC-33 1080 Meters
NICK 1020 Meters

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 96 500 feet in 500-foot increments.

SITE AND TIME

SMR 0715 MST



1. MET TOWER - 4 Bendix Model T-20 Anemometers at 12 ft, 62 ft, 102 ft, and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
 - (a) Pole #1 - 38.7 ft
 - (b) Pole #2 - 53.0 ft
 - (c) Pole #3 - 83.6 ft
3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

TABLE 1. Surface Observations Taken at 0820 MDT,
27 August 1979, at LC-33, 19702A GSRS,
Missile Number 310, Round Number B-33.

ELEVATION	3,977.3	FT/MSL
PRESSURE	880.5	MBS
TEMPERATURE	22.3	°C
RELATIVE HUMIDITY	63	%
DEW POINT	14.9	°C
DENSITY	1033	GM/M ³
WIND SPEED	03	MPH
WIND DIRECTION	130	DEGREES
CLOUD COVER	3	, Cu
CLOUD COVER	1	Ci

TABLE 2. LC-33 FIXED POLE ANEMOMETER-MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	085	03	-30	086	02	-30	090	06
-20	085	04	-20	076	03	-20	090	06
-10	084	04	-10	087	03	-10	091	05
0.0	084	04	0.0	084	03	0.0	091	06
+10	084	04	+10	090	03	+10	084	07

Type 19702 A GSPS, Missile No. 310, Round No. B-33 launched
 from LC-33 on 27 August 1979 at 0820 MDT.

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

NOTE: Wind Directions are referenced True North.

TABLE 3. LC-33 METEOROLOGICAL TOWER ANEMOMETER-MEASURED WINDS (202 FT. TOWER)

LEVEL #1 12 ft.			LEVEL #2 62 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	081	04	-30	090	04
-20	096	02	-20	088	04
-10	086	03	-10	083	04
0.0	087	02	0.0	073	04
+10	092	02	+10	073	04
LEVEL #3 102 ft.			LEVEL #4 202 ft.		
T-TIME SEC	DIR DEG	SPEED MPH	T-TIME SEC	DIR DEG	SPEED MPH
-30	102	04	-30	099	02
-20	096	05	-20	099	02
-10	087	04	-10	099	02
0.0	089	04	0.0	099	01
+10	079	04	+10	099	01

WTSM Coordinates: X484,982.64 Y185,957.73 H3983.00 (base)

Type 19702 A GSRS, Missile No. 310, Round No. B-33 launched
from LC-33 on 27 August 1979 at 0820 MDT.

NOTE: Wind Directions are Referenced True North.

PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC-33 DATE 27 August 1979 TIME 0812 MDT

MISSILE TYPE 19702A GPS MISSILE NO. 310 ROUND NO. B-33

MISSILE LAUNCHED FROM LC-33 DATE 27 August 1979 TIME 0820 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	130	03
60	163	08
120	170	13
180	173	19
240	166	17
300	156	16
360	144	15
420	134	17
480	126	20
540	128	22
600	133	24
660	138	26
720	140	23

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
780	143	21
840	146	20
900	147	21
960	148	22
1020	149	21
1080	150	20

PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM LC-33 DATE 27 August 1979 TIME 0820 MDT

RELEASE POINT COORDINATES (WSTM) X=486,037.24 Y=182,350.16 H=3,977.30

MISSILE TYPE 19702A GSRS MISSILE NO. 310 ROUND NO. B-33

MISSILE LAUNCHED FROM LC-33 DATE 27 August 1979 TIME 0820 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	130	02
60	179	08
120	187	14
180	189	20
240	178	17
300	159	13
360	136	12
420	125	16
480	118	19
540	123	22
600	132	24
660	139	27
720	142	26

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
780	146	24
840	150	23
900	152	22
960	155	21
1020	155	19
1080	155	17

PILOT BALLOON MEASURED WIND DATA

TABLE 6

RELEASED FROM NICK SITE DATE 27 AUGUST 1979 TIME 0810 MDTRELEASE POINT COORDINATES (WSTM) X=470,734.56 Y=255,775.64 H=4,126.57MISSILE TYPE 19702 A GSPS MISSILE NO. 310 ROUND NO. B-33MISSILE LAUNCHED FROM SMR DATE 27 AUGUST 1979 TIME 0820 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHTS - METERS AGL.

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
SFC	120	09
60	135	08
120	151	07
180	166	06
240	164	13
300	168	09
360	177	09
420	169	08
480	161	07
540	156	06
600	149	06
660	141	05
720	138	06

HEIGHT AGL	DIRECTION DEGREES	SPEED MPH
780	130	07
840	140	13
900	144	13
960	151	15
1020	159	18

GSRS PILOT BALLOON MEASURED WIND DATA

TABLE 7

RELEASED FROM NICK SITE DATE 27 August 1979 TIME 0820 MDT

COORDINATES (WSTM) X= 470,734.56 Y 255,775.64 H 4,126.57

MISSILE TYPE 19702A GSRS MISSILE NO. 310 ROUND NO. B-33

MISSILE LAUNCHED FROM SMR DATE 27 August 1979 TIME 0820 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TRUE NORTH.

HEIGHT MTR AGL	DIRECTION DEGREES	SPEED kts
SFC	145	05
60	156	07
120	167	08
180	171	11
240	167	12
300	171	11
360	182	09
420	175	09
480	174	08
540	171	07
600	159	05
660	137	05
720	138	08

HEIGHT MTR AGL	DIRECTION DEGREES	SPEED kts
780	139	10
840	140	12
900	147	14
960	152	15
1020	156	17

STATION ALTITUDE 397.30 FEET MSL
27 AUG. 79
ASSUMPTION NO. 253

SIGNIFICANT LEVEL DATA
25900, 0200
5 M R

STATION ALTITUDE 397.30 FEET MSL
27 AUG. 79
ASSUMPTION NO. 253

GEODETIC COORDINATES
32.42334 LAT DEG
100.42307 LONG DEG

TABLE 8

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
880.0	3997.3	22.2	16.0	68.0
875.0	4100.0	20.9	12.5	58.0
850.0	4963.4	19.8	11.0	60.0
834.4	5506.8	17.9	10.5	61.0
824.4	5847.3	19.5	10.5	56.0
814.4	6191.9	17.9	9.5	58.0
794.0	6305.4	18.4	8.9	54.0
731.5	9194.7	12.5	5.2	61.0
709.0	10410.6	12.8	5.2	52.0
625.8	13409.2	6.1	-4.1	48.0
581.6	15422.6	.2	-7.1	58.0
555.8	16612.7	-3.1	-6.2	79.0
551.6	16910.3	-3.5	-12.1	51.0
534.0	17611.6	-5.4	-20.2	50.0
522.0	18207.0	-5.5	-27.3	10.0
500.0	19341.4	-8.2	-29.5	16.0
490.4	19837.1	-7.5	-30.5	14.0
400.0	24940.0	-19.1	-33.1	15.0
358.0	27619.9	-26.0	-44.0	15.0
319.0	30355.3	-32.0	-49.5	16.0
300.0	31758.9	-33.5		
276.4	33639.3	-36.9		
250.0	35902.4	-42.0		
237.4	37049.5	-44.5		
226.4	38093.3	-45.6		
200.0	40778.5	-51.7		
191.6	41670.7	-53.0		
173.6	45738.6	-58.6		
150.0	48748.4	-64.4		
136.0	49623.5	-67.0		
129.0	49765.9	-66.1		
115.5	52007.0	-67.0		
108.4	53246.5	-63.0		
100.0	54876.1	-64.0		
83.6	58457.5	-64.8		
80.0	59100.9	-59.7		
70.0	62143.3	-59.6		
50.0	69170.4	-54.5		
43.2	72292.2	-51.7		
30.4	75954.9	-52.9		

GEODETIC COORDINATES
 32.46034 LAT DEG
 106.42307 LON DEG

SIGNIFICANT LEVEL DATA
 23900.0200
 5 M R

TABLE 8 (CONT)

STATION ALTITUDE 3997.30 FEET MSL
 27 AUG. 79 0715 HRS MST
 ASCENSION NO. 233

PRESSURE	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR	DEWPOINT DEGREES CENTIGRADE	
30.0	80119.9	-48.7		
20.0	88974.4	-47.0		
14.2	90539.2	-43.9		

STATION ALTITUDE 3997.00 FEET MSL
27 NOV 79 0715 HRS MSF
ASSEMBLY NO. 203

UPPER AIR DATA
230000Z00
S M R

COORDINATES
32.4034 LAT DEG
100.42307 LONG DEG

TABLE 9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC CM	SPEED OF SOUND KNOTS	WIND DATA DIRECTION(S) KNOTS	INDEX OR REFERENCE
3997.3	800.0	22.2	68.0	1029.8	672.2	0	1.000309
4000.0	809.9	22.2	67.6	1029.0	672.1	0	1.000308
4050.0	804.6	20.4	66.6	1019.5	667.0	3.2	1.000269
4100.0	800.0	19.7	66.0	1004.2	660.8	6.5	1.000265
4150.0	804.6	17.9	61.0	993.2	650.0	9.7	1.000277
4200.0	820.0	18.8	56.9	972.9	637.5	12.8	1.000272
4250.0	800.0	18.1	56.2	956.1	630.7	15.8	1.000260
4300.0	791.3	18.1	54.3	941.4	620.7	17.3	1.000260
4350.0	777.3	16.8	55.9	926.9	605.1	18.0	1.000255
4400.0	763.5	15.6	57.4	910.6	600.0	17.6	1.000250
4450.0	749.9	14.3	58.9	904.5	600.0	17.3	1.000240
4500.0	736.6	13.0	60.4	892.0	600.0	16.2	1.000241
4550.0	723.5	12.6	58.7	876.1	600.0	14.6	1.000235
4600.0	710.5	12.7	55.0	862.1	600.1	11.9	1.000230
4650.0	697.7	12.0	51.9	847.1	609.9	9.1	1.000224
4700.0	685.0	11.5	51.2	833.1	605.6	6.1	1.000219
4750.0	672.6	10.4	50.6	823.4	607.2	6.2	1.000214
4800.0	660.0	9.3	49.9	811.7	605.9	7.7	1.000209
4850.0	648.4	8.2	49.3	800.3	604.5	10.6	1.000204
4900.0	636.6	7.1	48.6	789.0	600.0	12.7	1.000200
4950.0	625.1	6.0	48.2	777.9	601.8	13.0	1.000195
5000.0	613.5	4.5	50.7	767.7	600.0	13.9	1.000192
5050.0	602.1	3.0	53.3	757.0	600.0	13.8	1.000189
5100.0	590.9	1.5	55.8	747.7	600.4	14.1	1.000180
5150.0	579.3	-0.0	59.4	737.9	604.0	14.5	1.000163
5200.0	568.9	-1.4	58.2	727.5	600.0	15.3	1.000161
5250.0	559.2	-2.8	77.0	717.4	601.4	16.8	1.000160
5300.0	547.6	-3.9	46.0	707.0	609.7	18.7	1.000159
5350.0	537.1	-5.1	32.9	697.5	600.1	20.4	1.000163
5400.0	526.8	-5.5	20.9	685.2	607.0	21.9	1.000157
5450.0	516.7	-6.2	16.0	673.9	600.7	22.0	1.000153
5500.0	506.7	-7.4	16.0	663.9	600.0	21.0	1.000151
5550.0	496.9	-8.0	15.4	652.5	604.0	19.5	1.000148
5600.0	487.2	-7.9	14.0	639.0	604.0	18.1	1.000145
5650.0	477.6	-9.0	14.1	629.7	600.0	17.0	1.000143
5700.0	468.0	-10.1	14.2	619.9	601.7	17.5	1.000140
5750.0	458.9	-11.3	14.3	610.5	600.0	18.0	1.000138
5800.0	449.0	-12.4	14.4	600.0	600.0	16.0	1.000130
5850.0	440.9	-13.6	14.5	591.0	600.0	19.1	1.000134
5900.0	432.2	-14.7	14.6	582.4	600.4	15.0	1.000131

UPPER AIR DATA
209000Z
5 M R

STATION ALTITUDE 3997.30 FEET MSL
27 AUG 79 0715 HRS MST
ASSUMED REL. HUM. 403

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

TABLE 9 (CONT)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CM ³	SPEED OF SOUND M/SEC	WIND DATA DIRECTION, SPEED DEGREES(MPH) KNOTS	INDEX OF REFRACTION
4350.0	423.7	-15.8	-36.0	14.7	573.4	625.0	269.7 19.7	1.000129
4300.0	415.3	-17.0	-37.5	14.8	564.6	623.0	290.4 19.6	1.000127
4250.0	407.1	-18.1	-38.3	14.9	555.9	621.2	292.0 19.4	1.000125
4200.0	399.0	-19.3	-39.2	15.0	547.4	620.8	294.0 19.1	1.000123
4150.0	390.0	-20.5	-40.3	15.0	538.9	619.4	296.2 18.6	1.000121
4100.0	382.0	-21.6	-41.4	15.0	530.6	617.7	298.0 18.4	1.000119
4050.0	375.0	-23.1	-42.4	15.0	522.4	616.1	292.0 18.7	1.000117
4000.0	367.3	-24.4	-43.5	15.0	514.3	614.5	288.7 19.3	1.000115
3950.0	359.0	-25.7	-44.6	15.0	506.4	612.9	280.2 20.6	1.000114
3900.0	352.3	-27.3	-45.4	15.1	498.2	611.4	274.1 22.4	1.000112
3850.0	344.9	-27.9	-46.3	15.3	489.9	610.1	270.0 24.7	1.000110
3800.0	337.0	-29.0	-47.1	15.5	481.6	608.7	268.7 27.2	1.000108
3750.0	330.3	-30.2	-47.9	15.7	473.6	607.3	265.0 28.5	1.000106
3700.0	323.0	-31.3	-48.7	15.9	465.0	605.9	262.3 29.5	1.000104
3650.0	316.7	-32.2	-50.5	14.1**	457.9	604.0	258.9 30.4	1.000102
3600.0	310.0	-32.7	-55.1	8.5**	449.1	604.1	255.0 31.4	1.000100
3550.0	303.4	-33.2	-63.0	2.9**	440.5	603.4	257.1 33.7	1.000098
3500.0	296.9	-33.9			432.3	602.5	257.1 35.9	1.000096
3450.0	290.5	-34.8			424.6	601.4	257.4 37.6	1.000095
3400.0	284.2	-35.7			417.0	600.3	257.3 39.7	1.000093
3350.0	278.1	-36.6			409.0	599.1	258.0 41.6	1.000091
3300.0	272.0	-37.7			402.5	597.6	258.6 42.6	1.000090
3250.0	266.0	-38.6			395.3	596.3	254.9 42.4	1.000088
3200.0	260.2	-40.0			388.7	594.9	254.2 43.2	1.000087
3150.0	254.5	-41.1			382.1	593.3	253.7 45.0	1.000085
3100.0	248.9	-42.2			375.5	592.0	253.0 47.5	1.000084
3050.0	243.4	-43.3			368.0	590.6	253.0 49.0	1.000082
3000.0	237.9	-44.4			362.3	589.4	253.0 49.9	1.000081
2950.0	232.0	-45.1			355.2	588.4	253.0 50.0	1.000079
2900.0	227.4	-45.7			348.2	587.0	253.0 51.5	1.000078
2850.0	222.2	-46.7			341.0	586.3	253.4 54.9	1.000076
2800.0	217.1	-47.5			333.3	585.0	252.9 55.5	1.000075
2750.0	212.2	-48.9			323.6	584.4	251.9 51.7	1.000073
2700.0	207.3	-50.0			320.0	582.0	251.0 48.7	1.000072
2650.0	202.6	-51.1			317.0	580.3	250.3 47.2	1.000071
2600.0	197.9	-52.0			311.3	579.1	250.1 47.0	1.000069
2550.0	193.3	-52.6			305.0	578.4	249.9 49.0	1.000068
2500.0	188.8	-53.9			298.0	576.9	249.3 51.0	1.000067
2450.0	184.4	-55.2			294.7	575.1	249.0 52.3	1.000066
2400.0	180.0	-56.0			289.6	573.3	248.9 53.6	1.000065

** AT LAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 397.30 FEET MSL
 27 AUG 77 0715 RMS MS
 SMOKEHOUSE 0. 233

UPPER AIR DATA
 209000200
 S M R

GEODETIC COORDINATES
 32.42034 LAT DEG
 100.42307 LONG DEG

TABLE 9 (CONT)

GEODETIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/SEC	WIND DATA DIRECTION DEGREES (T)	WIND SPEED M/SEC	INDEX OF REFRACTION
4300.0	175.0	-50.0		264.0	571.3	240.2	54.8	1.000003
4200.0	171.0	-59.1		275.3	570.0	243.7	56.1	1.000002
4100.0	167.4	-60.1		273.7	569.7	243.2	57.2	1.000001
4000.0	163.4	-61.0		268.3	567.4	243.0	58.3	1.000000
3900.0	159.4	-62.0		263.1	566.1	240.8	62.7	1.000059
3800.0	155.0	-63.0		257.9	564.8	240.9	67.2	1.000057
3700.0	151.6	-63.9		252.6	563.3	247.3	66.1	1.000056
3600.0	148.1	-64.7		247.0	562.4	247.5	63.5	1.000055
3500.0	144.3	-65.4		242.3	561.5	250.2	58.5	1.000054
3400.0	140.3	-66.1		237.1	560.5	254.1	52.5	1.000053
3300.0	137.4	-66.8		232.1	559.0	257.7	50.3	1.000052
3200.0	134.0	-66.7		228.2	559.8	260.3	50.7	1.000050
3100.0	130.7	-66.3		220.2	560.3	263.4	50.1	1.000049
3000.0	127.5	-66.2		214.0	560.4	266.4	47.7	1.000048
2900.0	124.3	-66.4		209.5	560.2	269.4	45.3	1.000047
2800.0	121.3	-66.0		204.3	559.9	269.4	41.9	1.000046
2700.0	118.3	-65.8		199.7	559.0	269.4	36.2	1.000044
2600.0	115.3	-67.0		194.9	559.4	263.2	31.5	1.000043
2500.0	112.5	-65.6		185.9	561.2	260.0	24.1	1.000042
2400.0	109.7	-64.3		183.0	563.0	263.3	16.9	1.000041
2300.0	107.0	-63.8		176.1	563.7	261.4	9.9	1.000040
2200.0	104.3	-64.1		174.0	563.3	249.0	3.1	1.000039
2100.0	101.3	-64.4		170.0	562.9	240.7	4.0	1.000038
2000.0	97.9	-64.0		160.0	562.0	243.2	6.2	1.000037
1900.0	97.0	-64.0		162.0	562.0	247.3	6.4	1.000036
1800.0	94.6	-64.7		152.0	562.3	251.0	9.0	1.000035
1700.0	92.3	-64.7		154.2	562.3	251.9	5.0	1.000034
1600.0	90.0	-64.7		150.4	562.4	243.4	3.3	1.000033
1500.0	87.8	-64.7		146.7	562.4	219.0	1.8	1.000033
1400.0	85.6	-64.6		143.2	562.4	148.9	1.5	1.000032
1300.0	83.5	-64.4		139.4	562.9	113.3	2.9	1.000031
1200.0	81.5	-60.9		135.8	567.5	100.3	3.9	1.000030
1100.0	79.6	-59.7		129.3	569.2	93.1	4.9	1.000029
1000.0	77.7	-59.7		126.7	569.2	92.0	5.7	1.000028
900.0	75.8	-59.7		123.7	569.2	102.0	5.6	1.000028
800.0	74.0	-59.6		120.7	569.3	112.9	5.7	1.000027
700.0	72.2	-59.6		117.0	569.3	120.0	6.8	1.000026
600.0	70.5	-59.6		113.0	569.3	123.4	8.1	1.000025
500.0	68.8	-59.3		112.1	569.7	127.3	9.2	1.000025
400.0	67.2	-59.0		109.3	570.1	122.9	9.2	1.000024

STATION ALTITUDE 3497.30 FEET MSL
27 AUG. 79 0715 IRS MST
ASCENSION NO. 203

UPPER AIR DATA
230000Z03
S M H

GEOMETRIC COORDINATES
32.42034 LAT DEG
100.42307 LONG DEG

TABLE 9 (CONT)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GRAMS PER CUBIC METER	SPEED OF WIND KNOTS	WIND DATA DIRECTION DEGREES (T)	WIND SPEED KNOTS	INDEX OR REFRACTION
03500.0	65.6	-59.6		100.5	570.0	110.2	9.2	1.000024
04000.0	64.1	-58.3		103.8	571.1	114.0	9.2	1.000023
04500.0	62.5	-57.9		101.2	571.0	110.3	9.3	1.000023
05000.0	61.1	-57.5		98.7	572.1	100.0	9.4	1.000022
05500.0	59.6	-57.2		96.2	572.5	105.3	9.8	1.000021
06000.0	58.2	-56.8		93.7	573.0	104.4	10.2	1.000021
06500.0	56.3	-56.4		91.4	573.5	103.3	10.5	1.000020
07000.0	55.5	-56.1		89.1	574.0	102.3	10.9	1.000020
07500.0	54.2	-55.7		86.8	574.3	100.7	11.2	1.000019
08000.0	52.9	-55.4		84.6	574.9	93.3	11.4	1.000019
08500.0	51.6	-55.0		82.3	575.4	97.0	11.0	1.000018
09000.0	50.4	-54.6		80.4	575.9	96.7	11.8	1.000018
09500.0	49.3	-54.2		78.4	576.4	95.5	11.9	1.000017
10000.0	48.1	-53.8		76.4	577.0	95.2	12.0	1.000017
10500.0	47.0	-53.3		74.5	577.0	95.5	12.2	1.000017
11000.0	45.9	-52.9		72.6	578.2	97.0	12.4	1.000016
11500.0	44.8	-52.4		70.8	578.0	93.3	12.6	1.000016
12000.0	43.6	-52.0		69.0	579.4	93.5	12.3	1.000015
12500.0	42.6	-51.8		67.3	579.7	99.2	12.0	1.000015
13000.0	41.6	-51.9		65.6	579.4	100.5	11.7	1.000015
13500.0	40.8	-52.1		64.3	579.2	102.9	11.4	1.000014
14000.0	39.9	-52.3		62.9	579.0	103.3	11.1	1.000014
14500.0	39.0	-52.4		61.5	578.8	99.5	12.7	1.000014
15000.0	38.1	-52.6		60.1	578.6	93.7	14.9	1.000013
15500.0	37.2	-52.8		58.6	578.4	88.9	17.0	1.000013
16000.0	36.3	-52.9		57.4	578.2	82.7	18.2	1.000013
16500.0	35.5	-52.4		56.0	578.9	77.2	19.6	1.000012
17000.0	34.7	-51.8		54.6	579.5	73.4	20.2	1.000012
17500.0	33.9	-51.3		53.2	580.2	71.2	19.7	1.000012
18000.0	33.1	-50.8		51.9	580.9	68.7	19.1	1.000012
18500.0	32.3	-50.3		50.6	581.5	63.2	22.2	1.000011
19000.0	31.6	-49.8		49.3	582.2	60.0	28.0	1.000011
19500.0	30.9	-49.3		48.1	582.0	69.2	33.8	1.000011
20000.0	30.2	-48.8		46.8	583.5	71.4	34.9	1.000010
20500.0	29.5	-48.6		45.7	583.7	74.4	34.4	1.000010
21000.0	28.8	-48.5		44.7	583.9	77.5	34.0	1.000010
21500.0	28.2	-48.4		43.7	584.0	82.3	30.6	1.000010
22000.0	27.5	-48.3		42.7	584.1	86.3	26.9	1.000009
22500.0	26.9	-48.2		41.7	584.2	90.7	23.8	1.000009
23000.0	26.3	-48.1		40.7	584.4	96.0	24.4	1.000009

STATION ALTITUDE 3497.30 FEET MSL
27 AUG. 79 0715 HRS MST
ASCENSION NO. 203

UPPER AIR DATA
2390000200
5 M R

GEODETIC COORDINATES
32.40034 LAT DEG
106.42307 LONG DEG

TABLE 9 (CONT)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND M/SEC	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES (T)	SPEED KNOTS	
0300.0	25.7	-48.1		39.8	504.2	90.0	24.9	1.000009
0400.0	25.1	-48.0		39.9	504.6	90.0	25.3	1.000009
0500.0	24.5	-47.9		39.0	504.7	94.9	25.2	1.000008
0600.0	24.0	-47.3		37.1	504.9	93.2	25.1	1.000008
0700.0	23.4	-47.7		36.2	503.0	91.5	25.1	1.000008
0800.0	22.9	-47.5		35.4	503.1	87.1	26.1	1.000008
0900.0	22.4	-47.5		34.6	503.2	83.1	27.3	1.000008
1000.0	21.9	-47.4		33.8	503.4	79.4	28.6	1.000008
1100.0	21.4	-47.3		33.0	503.5	77.2	29.3	1.000007
1200.0	20.9	-47.2		32.2	503.6	75.5	29.7	1.000007
1300.0	20.4	-47.1		31.5	503.7	73.5	30.3	1.000007
1400.0	20.0	-47.0		30.8	503.9	73.2	31.3	1.000007
1500.0	19.5	-46.8		30.1	504.1	73.7	32.5	1.000007
1600.0	19.1	-46.6		29.4	504.4	74.1	33.8	1.000007
1700.0	18.7	-46.4		28.7	504.7	75.0	34.6	1.000006
1800.0	18.2	-46.2		28.0	504.9	79.8	35.0	1.000006
1900.0	17.8	-46.0		27.4	507.2	83.5	35.6	1.000006
2000.0	17.4	-45.8		26.7	507.5	87.1	35.9	1.000006
2100.0	17.0	-45.6		26.1	507.7	90.5	34.7	1.000006
2200.0	16.7	-45.4		25.5	508.0	94.1	33.6	1.000006
2300.0	16.3	-45.1		24.9	508.3			1.000006
2400.0	15.9	-44.9		24.3	508.5			1.000005
2500.0	15.6	-44.7		23.8	508.8			1.000005
2600.0	15.2	-44.5		23.2	509.0			1.000005
2700.0	14.9	-44.3		22.7	509.3			1.000005
2800.0	14.6	-44.1		22.1	509.6			1.000005
2900.0	14.2	-43.9		21.6	509.8			1.000005

STATION ALTITUDE 3937.30 FEET MSL
27 AUG. 79 0115 HRS MST
ASCENSION NO. 203

MANDATORY LEVELS
2090000203
5 M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

TABLE 10

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
					DIRECTION DEGREES (114)	SPEED KNOTS
850.0	4990.	19.8	11.0	60.	150.0	0.4
800.0	6089.	18.3	9.1	59.	150.1	10.9
750.0	6495.	14.3	6.4	59.	102.0	17.3
700.0	10400.	12.8	3.2	52.	204.4	9.8
650.0	12428.	8.4	-1.0	49.	274.3	10.2
600.0	14380.	2.7	-5.7	54.	202.2	13.9
550.0	16864.	-3.7	-12.6	49.	200.0	10.3
500.0	19314.	-8.2	-29.5	10.	205.7	20.1
450.0	21984.	-12.4	-34.0	14.	204.4	10.6
400.0	24390.	-19.1	-39.1	15.	244.2	19.1
350.0	28103.	-27.2	-45.7	15.	272.5	22.9
300.0	31095.	-33.5			250.0	34.8
250.0	35023.	-42.0			253.0	47.2
200.0	40079.	-51.7			250.2	40.4
175.0	43494.	-58.2			240.1	55.0
150.0	48021.	-64.4			247.5	64.9
125.0	50249.	-66.4			208.9	40.0
100.0	54705.	-64.6			243.5	3.7
80.0	59189.	-59.7			95.0	4.6
70.0	61928.	-59.6			120.3	0.4
60.0	65109.	-57.3			105.9	9.7
50.0	68916.	-54.5			90.0	11.8
40.0	73053.	-52.2			104.0	11.2
30.0	79774.	-48.7			71.9	34.9
25.0	83713.	-47.9			90.5	25.3
20.0	88553.	-47.0			75.1	31.1
15.0	94041.	-44.4				

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.